

REMARKS

Claims 10-39 are pending and at issue in the application with claims 10, 14-16, 22, 23, 27 and 28 being independent claims. Claims 10, 14-16, 22, 23, 27 and 28 have been amended. Claims 33-39 have been added. As a result, 30 total claims now exist in the application as previously paid for. However, the Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fees which may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 13-2855. Reconsideration and withdrawal of the rejections in view of the remarks below is respectfully requested.

The applicants respectfully traverse the rejections of claims 22 and 27 as anticipated by Baba (U.S. Patent No. 5,751,063). The applicants further traverse the rejections of claims 10-21, 23-26 and 28-32 as obvious over Baba in view of one or more of Lee et al. (U.S. Patent Application Publication No. 2002/0140085), Taguchi et al. (U.S. Patent No. 4,464,420), Nishi et al. (U.S. Patent No. 5,900,673) and Hamburg (U.S. Patent No. 5,235,211).

Independent claims 10, 14 and 15 each recite, *inter alia*, a circuit package that includes a first metal pattern disposed on a first surface of a base portion, a second metal pattern disposed on a second surface of the base portion and a third metal pattern disposed on the second surface. Claim 10 recites that the second metal pattern is electrolytically and selectively plated with a metal of a first type and the third metal pattern is electrolytically plated with a metal of a second type different from the first type. Claim 14 recites a nickel-plated pattern electrolytically and selectively disposed on the second metal pattern. Claim 15 recites a gold-plated pattern is electrolytically and selectively disposed on the third metal pattern.

Independent claim 22 recites, *inter alia*, a circuit package that includes a single heat sink positioned within an opening of a substrate and adapted to effectively dissipate heat.

Independent claims 16, 23, 27 and 28 each recite, *inter alia*, a circuit package that includes a single unitary heat sink positioned within an opening of a substrate.

APPLICANTS' INTERVIEW SUMMARY

On August 24, 2005 and August 29, 2005, the applicants' attorney Aaron M. Peters (Reg. No. 48,801) conducted telephonic interviews with Examiner Lalrinfamkim Hmar Malsawma in which independent claims 10, 14-16, 22, 23, 27 and 28 were discussed. During those interviews Examiner Malsawma indicated that claims 10, 14 and 15, and all claims dependent thereon, would overcome the present action as amended above. Although agreement was not reached with regard to all of the claims, Examiner Malsawma indicated that the amendments and accompanying remarks would be considered in light of performing an updated search.

During the interviews, the Examiner agreed that the purported combination of Baba, Lee et al. and Taguchi et al. (assuming a *prima facie* suggestion for the combination existed) did not teach or suggest each of the limitations of claims 10, 14 and 15, as amended. In particular, the Examiner agreed that Taguchi et al. did not disclose or suggest a metal pattern electrolytically and selectively plated with a metal of a first type, such as nickel, or another metal pattern electrolytically and selectively plated with a metal of a second type different from the first type, such as gold. It was further discussed that in Taguchi et al. the plating layers 4, 4A, 5, 5A are formed using chemical baths. As such, Taguchi et al. does not disclose or suggest a first metal pattern disposed on a first surface of a base portion, a second metal pattern disposed on a second surface of the base portion and a third metal pattern disposed on the second surface, where the second metal pattern is electrolytically and selectively plated with a metal of a first type and the third metal pattern is electrolytically plated with a metal of a second type different from the first type, as recited in claims 10-13 and 31-33, where a nickel-plated pattern electrolytically and selectively disposed on the second metal pattern as recited in claim 14 or where a gold-plated pattern is electrolytically and selectively disposed on the third metal pattern as recited in claim 15.

Further, Baba and Lee et al. fail to disclose or suggest a metal pattern electrolytically and selectively plated with a metal of a first type, and another metal pattern electrolytically and selectively plated with a metal of a second type different from the first type, as recited by claims 10-13 and 31-33, a nickel-plated pattern electrolytically and selectively disposed on the second metal pattern as recited in claim 14 or a gold-plated pattern is electrolytically and selectively disposed on the third metal pattern as recited in claim 15. The combination of

Baba, Lee et al. and Taguchi et al. therefore fails to teach or suggest all of the limitations of claims 10-15 and 31-33. MPEP 2143.03.

It was further discussed during the interview that, contrary to the assertion of the Office action, Baba does not disclose a single heat sink positioned within an opening of a substrate. A heat sink functions by effectively dissipating heat generated by a circuit, or other device, built on a substrate. Although Baba discloses a metal plate 14 to conduct heat, the metal plate 14 alone is not described as effectively dissipating heat either expressly or inherently. Instead, Baba teaches that a separate heat sink 16 is bonded to the metal plate 14 so as to effectively dissipate heat. (Baba, col. 7, ll. 5-8; col. 8, ll. 16-21; Figs. 6, 8A, 8B). In other words, Baba teaches that a separate heat sink 16 is required, and the metal plate 14 does not function as a heat sink. Even in the event that the metal plate 14 can be considered a heat sink, such an interpretation necessarily results in Baba disclosing multiple heat sinks, rather than a single heat sink, because Baba requires the heat sink 16 in addition to the metal plate 14.

During the interview, the Examiner asserted that Figs. 8A and 8B disclose an intermediate structure that includes a single heat sink (metal plate 14). However, Baba specifically requires an additional heat sink to be located on the metal plate 14 of Figs. 8A and 8B in order to effectively facilitate the release of heat. (Baba, col. 8, ll. 16-21). Again, the metal plate 14 of the intermediate structure shown in Figs. 8A and 8B is not a heat sink, because the metal plate 14 alone does not effectively dissipate heat. As a result, the intermediate structure shown in Figs. 8A and 8B cannot function properly without the addition of a heat sink. Again, even if the metal plate 14 can be considered a heat sink, such an interpretation necessarily results in Baba disclosing multiple heat sinks. By contrast, the circuit package of claims 22 and 30 includes only a single heat sink positioned within an opening of a substrate and adapted to effectively dissipate heat.

Because Baba does not disclose a single heat sink positioned within an opening of a substrate and adapted to effectively dissipate heat, as recited by claims 22 and 30, Baba does not anticipate either of claims 22 or 30. Likewise, none of Lee et al, Taguchi et al., Nishi et al. or Hambrun discloses or suggests a circuit package that includes a single heat sink positioned within an opening of a substrate and adapted to effectively dissipate heat. Therefore, none of Lee et al, Taguchi et al., Nishi et al. or Hambrun, either alone or in combination with Baba, renders either of claims 22 or 30 obvious.

The examiner further asserted during the interview that the combined structure of the metal plate 14, the adhesive 15 and the heat sink 16 of Baba discloses a single heat sink. However, claims 16-29 each recite a single heat sink positing in an opening of a substrate, where a top surface is exposed through the top surface of the substrate and a bottom surface is exposed through a bottom surface of the substrate. A combined structure of the metal plate 14, the adhesive 15 and the heat sink 16 does not include a top surface exposed through the top surface of the substrate and a bottom surface exposed through a bottom surface of the substrate. Further, claims 16 and 23-29 each recite a single *unitary* heat sink. A combined structure of the metal plate 14, the adhesive 15 and the heat sink 16 is not a unitary structure.

Because Baba does not disclose a circuit package that includes a single unitary heat sink positioned within an opening of a substrate, as recited by claims 16-30, Baba does not anticipate any of claims 16 and 23-29. Likewise, none of Lee et al, Taguchi et al., Nishi et al. or Hambrgen discloses or suggests a circuit package that includes a single unitary heat sink positioned within an opening of a substrate. Therefore, none of Lee et al, Taguchi et al., Nishi et al. or Hambrgen, either alone or in combination with Baba, renders any of claims 16 and 23-29 obvious.

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Applicants respectfully submit that the amendments to the claims and the remarks presented herein have placed the application in condition for allowance. As such, amended independent claims 10, 14-16, 22, 23, 27 and 28 are believed to be in allowable form. Further, dependent claims 11-13, 17-21, 24-26 and 29-39, which are dependent upon the aforementioned independent claims are also submitted to be in allowable form.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested. Should the Examiner wish to discuss the foregoing, or any matter of form, the Examiner is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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